

International Islamic University Chittagong

Department of Computer Science & Engineering

B.Sc. in CSE, Mid Term Examination, Spring 2023

Course Code: CSE-1221 Course Title: Computer Programming 2

Total Marks: 30 Time: 90 minutes

Answer all 3 from the following Questions. Figures in the right-hand margin indicate full marks

1 a) Find errors, if any, in the following C++ statements: 3

1. `cout << "x="x;`
2. `m = 5; // n = 10; // s = m + n;`
3. `cin >> ::x >> y;`
4. `cout << \n "Name: " << name;`
5. `cout << "Enter value:"; cin << x;`
6. `/*Addition*/ z = x + y;`

b) Identify the error, correct the code if any error found. 4

i)	ii)
<pre>#include<iostream> using namespace std; class A{ int i; }; void set(A ob, int x){ ob.i = x; } int main() { A ob; set(ob,6); return 0; }</pre>	<pre>#include <iostream.h> class Room { int width, height; void setValue(int w, int h) { width = w; height = h; } }; void main(){ Room obj; obj.setValue(12, 5); }</pre>

c) Write a C++ program to display the following output using a single **cout** statement. 1

```
Math = 90
Physics = 77
Chemistry = 80
```

d) What are the differences between public and private class members? 2

Explain encapsulation with a suitable example.

Or,

What do you mean by object and class? Describe the characteristics of object-oriented programming.

2 a) Describe when we need to use in-line function? When it is not recommended? 2

Or,

How to use private member variables of a class in a non-member function of that class? Explain with an example.

b) Correct the following code and explain the reason: 2

```
#include <iostream>
using namespace std;
class flower{
    int PL, LL;
public:
    flower(int PL, int LL){
        PL = PL;
        LL = LL;
    }
    void show(){
        cout << PL << " " << LL << endl;
    }
};
int main()
{
```

```
T1(12,10), T2(1,55);
```

Write a program to add two times. Complete the following incomplete code and write the output by creating a class called `Time` with two private member variables: `hour` and `minutes`.

```
void addTime(Time t1, Time t2){
    int Hr = (t1.hour + t2.hour + (t1.minutes + t2.minutes)/60);
    int Mn = (t1.minutes + t2.minutes)%60;
    cout << Hr << " Hour " << Mn << " Minutes" << endl;
}
int main()
{
    Time T1(12,10), T2(1,55);
    addTime(T1, T2);
    return 0;
}
```

d) Write a class named `Student` with necessary private member variables. Create 100 student objects in main function.

Take input for each object using `cin` in a member function of `Student` class.

Or,

Write a program that would print the information (name, year of joining, salary, address) of 100 employees by creating a class named `Employee`. The output should be as follows:

```
Deniyel    1992 - Chicago
Samuyel    1994  NY
Bruce      1990  South Carolina
```

3 a) Write a code, where following two statements can be written in main function properly.

```
Employee E1(10, 3000);
Employee E2 = E1;
```

Where, 10 and 3000 are id and salary; E1 and E2 are two objects of `Employee` class.

b) Can we have more than one constructor in a class? Explain your answer with necessary code.

Or,

What is the problem in the following code? Explain.

```
#include <iostream>
using namespace std;
void pri(int z = 0, int x){
    cout << x << endl;
}
void pri(int a){
    cout << a << endl;
}
int main()
{
    pri(5);
    return 0;
}
```

Write a program demonstrating passing object by reference. How passing object by reference solves the problem? Compare with passing object by value?

In which situations copy constructor is used? Give some situations where copy constructor is used.